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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,374	01/22/2002	Walter Demuth	076776-0121	6987

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EXAMINER

JIMENEZ, MARC QUEMUEL

ART UNIT	PAPER NUMBER
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3726

DATE MAILED: 02/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

N.K

Office Action Summary

Application No.

10/051,374

Applicant(s)

DEMUTH ET AL.

Examiner

Marc Jimenez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-12 is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/13/02 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The corrected or substitute drawings were received on 6/13/02. These drawings are approved.

Claim Objections

3. Claim 8 is objected to because of the following informalities: "region(s)" in lines 9 and 11 should be - - regions - -. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (5,243,842) in view of Damsohn et al. (5,743,329).

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Kobayashi et al. teach a method for forming (see fig. 41-52) at least one flat-tube insertion slot **105** in a heat exchanger header tube **130** suitable for use in an air-conditioning system, comprising: making a cut (fig. 46) in the header tube **131** in the header tube **130**, the cut having a first length and a first width, and configuring the flat-tube insertion slot **105** by punching (fig. 49A-B) into the region of the cut **131** with a slot punch (col. 15, lines 61-68), the slot punch having at least one of a larger width and larger length relative to the respective first width and first length of the cut, to thereby form a rimmed insertion slot **105** having a rim **107** on at least a portion of its periphery extending into the interior of the header tube **130** (fig. 51).

Kobayashi et al. teach the claimed invention except that Kobayashi et al. use punching to make the cut (fig. 46) instead of the cut being a “sawcut”.

Damsohn et al. teach that saw cutting and punching are art recognized equivalents (col. 7, line 8).

Therefore, because these two cutting techniques were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute sawcutting for punching.

With respect to Claims 2 and 7, Kobayashi et al. teach that the sawcut is introduced to a depth **133** which is less than the wall thickness of the header tube (see fig. 44) because the saw cut is introduced to form the taper **133**. Although Kobayashi et al. also introduces the cut in the portion **134** which is through the thickness of the header tube, the claims do not preclude this.

However, if applicant amends the claims such that the sawcut is not also introduced through the depth of the wall thickness, at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have made the

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sawcut a depth which is less than the wall thickness of the header tube, because applicant has not disclosed that a sawcut depth which is less than the wall thickness of the header tube provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally as well with either the sawcut depth taught by the prior art or the claimed sawcut depth because both sawcuts perform the same function of preparing the tube for a further punching step. Furthermore, as disclosed in applicant's specification at page 7, lines 3-7, applicant states that "as an alternative, the sawcut can also be introduced to a depth greater than the header-tube wall thickness D, ie., the sawcut generated during the first method step then forms a sawn slot which penetrates the header-tube wall." (this is what the prior art also teaches).

With respect to Claim 3, it is noted that the slot 107 of Kobayashi et al. is transverse to the axis of the header tube 130 (as also claimed in applicant's Claim 4) rather than the claimed "parallel to the axis of the header tube". However, at the time the invention was made it would have been an obvious matter of design choice to a person of ordinary skill in the art to have made the sawcut parallel to the axis of the header tube, because applicant has not disclosed that a parallel sawcut provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally as well with either the transverse sawcut the prior art (and as claimed in applicant's Claim 4) or the claimed parallel sawcut, because both sawcuts perform the same function of providing attachments to heat exchange tubes. Furthermore, official notice is taken that it is well known in the art to use sawcuts that are parallel rather than transverse to the axis of the header tube.

Note that Kobayashi et al. teach that the first width, first length and the width and length of the slot punch are selected such that the rim formed on a first portions of the insertion slot is longer than the rim on at least one second portion of the periphery of the insertion slot via. taper 133 (see fig. 44 and 49B).

6. **Claims 1-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mosier et al. (3,689,972) in view of Imoto et al. (JP 355122627A) and Larikka (4,503,693).

Mosier et al. teach a method for forming at least one flat-tube insertion slot 18 in a heat exchanger header tube 11 suitable for use in an air-conditioning system, comprising: making a rimmed insertion slot having a rim 17 on at least a portion of its periphery extending into the interior of the header tube 11.

Although, Mosier et al. teach the claimed structure of the slot and rim formed 17, Mosier et al. does not go into the specifics in how the slot and rim are formed, specifically, by making a sawcut in the header tube, the sawcut having a first length and a first width, and punching into the region of the sawcut with a slot punch, the slot punch having at least one of a larger width and larger length relative to the respective first width and first length of the sawcut.

Imoto et al. teach making a cut 1 in a header tube, the cut having a first length and a first width (see fig. 5), and punching into the region of the cut with a punch 2, the slot punch 2 having a least one of a larger width and larger length relative to the respective first width and first length of the cut.

It would have been obvious to one of ordinary skill in the art, at the time of the invention,

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to have provided the invention of Mosier et al. with making a cut having a first length and first width in the header tube, and punching into the region of the cut with a punch having at least one of a larger width and larger length relative to the respective first width and first length of the cut, in light of the teachings of Imoto et al., in order to utilize an automated punching process that forms symmetrical rims in the tube material.

Although, the elliptical hole 1 of Imoto et al. is formed by a cutting technique, Imoto et al. do not specifically use a "sawcut" process to make the hole 1.

However, Larikka teaches making a sawcut (fig. 2) to create a slot having a first length and a first width.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided the invention of Mosier et al./Imoto et al. with making a "sawcut" in light of the teachings of Larikka, in order to automatically form a sawcut having symmetrically formed first width and first length.

Note that the sawcut is made in a direction transverse to the axis of the header tube, the rim formed on a first portion of the insertion slot is longer than the rim on at least a second portion of the periphery of the insertion slot.

With respect to Claims 2 and 7, Mosier et al./Imoto et al./Larikka teach the invention cited above with the exception of the sawcut being introduced to a depth which is less than the wall thickness of the header tube.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have made the sawcut a depth which is less than the wall thickness of the header tube, because applicant has not disclosed that a sawcut depth

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which is less than the wall thickness of the header tube provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally as well with either the sawcut depth taught by the prior art or the claimed sawcut depth because both sawcuts perform the same function of preparing the tube for a further punching step. Furthermore, as disclosed in applicant's specification at page 7, lines 3-7, applicant states that "as an alternative, the sawcut can also be introduced to a depth greater than the header-tube wall thickness D, ie., the sawcut generated during the first method step then forms a sawn slot which penetrates the header-tube wall." (this is what the prior art also teaches).

Therefore, it would have been an obvious matter of design choice to modify Mosier et al./Imoto et al./Larikka to obtain the invention as specified in claims 2 and 7.

With respect to Claim 3, it is noted that the slot 17 of Mosier et al. is transverse to the axis of the header tube 11 (as also claimed in applicant's Claim 4) rather than the claimed "parallel to the axis of the header tube". However, at the time the invention was made it would have been an obvious matter of design choice to a person of ordinary skill in the art to have made the sawcut parallel to the axis of the header tube, because applicant has not disclosed that a parallel sawcut provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally as well with either the transverse sawcut the prior art (and as claimed in applicant's Claim 4) or the claimed parallel sawcut, because both sawcuts perform the same function of providing attachments to heat exchange tubes. Furthermore, official notice is taken

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that it is well known in the art to use sawcuts that are parallel rather than transverse to the axis of the header tube.

Allowable Subject Matter

7. **Claims 8-12** are allowed.

8. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not teach or suggest forming at least one flat-tube insertion slot in a heat exchanger header tube comprising: making a sawcut in the header tube, and configuring the flat-tube insertion slot by punching into the region of the sawcut with a slot punch, wherein the header tube comprises a multi-chamber header tube with passageways at a distance from one another by web regions, the insertion slot extending transversely over a plurality of tube passageways, and wherein during the punching, at least a portion of the respective web regions are compressed to a level lower than a flat-tube insertion stop, in combination with all of the other claim limitations.

Although Folkedal (WO 98/51983) teaches forming a flat tube insertion slot **5** in a multi-chamber header tube **3** by making a first sawcut up to the shoulder region **31** and then making another cut up to shoulder region **32**, Folkedal does not teach using the claimed punching operation in the region of the sawcut, wherein at least a portion of the respective web regions are compressed to a level lower than a flat-tube insertion stop. There is no teaching reference of

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record showing the use of a punch in a multi-chamber to compress the web regions to a lower level.

Contact Information

9. Telephone inquiries regarding the status of applications or other general questions, by persons entitled to the information, should be directed to the group clerical personnel. In as much as the official records and applications are located in the clerical section of the examining groups, the clerical personnel can readily provide status information. M.P.E.P. 203.08. The Group clerical receptionist number is (703) 308-1148.

If in receiving this Office Action it is apparent to applicant that certain documents are missing, e.g., copies of references cited, form PTO-1449, form PTO-892, etc., requests for copies of such papers or other general questions should be directed to Tech Center 3700 Customer Service at (703) 306-5648, or fax (703) 872-9301 or by email to CustomerService3700@uspto.gov.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc Jimenez whose telephone number is **703-306-5965**. The examiner can normally be reached on **Monday-Friday, between 5:30 am- 2:00 pm**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Vidovich can be reached on 703-308-1513. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9302 for regular communications and 703-872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

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should be directed to the receptionist whose telephone number is 703-308-1148.

Other helpful telephone numbers are listed for applicant's benefit.

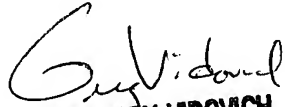
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MJ

February 4, 2003


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